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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/075,928

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Haruo Andoh

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EXAMINER

HABERMEHL, JAMES LEE

ART UNIT

PAPER NUMBER

2651

DATE MAILED: 08/27/2004

3

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/075,928

Applicant(s)

ANDOH ET AL.

Examiner

James L Habermehl

Art Unit

2651

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 February 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☒ Claim(s) 15 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 Feb 02 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 11-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 11 recites the limitations "said positional information obtaining step," "said range information," "said specified sector," and "said sector" in lines 1, 2, 3, and 6 of the claim. There is insufficient antecedent basis for these limitations in the claim.

Claim 12 recites the limitation "said positional information obtaining step" and "said range information" in lines 1 and 2 of the claim. There is insufficient antecedent basis for this limitation in the claim.

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 9-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Dobbek et al. Dobbek et al. Figure 4 meets all the limitations of the claim, where it accepts specification of a sector from a host computer at element 264, obtains a physical address of said sector with reference to defect sector information at elements 450/456/458/460/468, and reads/writes according to the obtained physical address at at least 212.

Regarding claim 10, col. 9, lines 11-13 and col. 16, lines 9-15 show the LBA specification does not consider any defect sectors on the disk.

As best the examiner understands claims 11-12, col. 16, line 56 through col. 17, line 51 show adding up the logical address of the specified sector and the number of defect sectors continued up to said specified sector to obtain the physical address of said specified sector.

6. Claims 13-14 are rejected under 35 U.S.C. 102(e) as being anticipated by Ottesen et al. ('676). Ottesen et al. ('676) Figures 1-3B show setting a sector as a defect sector as claimed, and Figures 3A-3B show registering a plurality of defect sectors in summary table T which includes information from registers 2 and 3 on

the first defect sector, the number of defect sectors in a track or cylinder, and the number of tracks or cylinders in the radial direction.

Regarding claim 14, since Ottesen et al. ('676) lumps tracks into zones of 8200/csize tracks each, then necessarily the number of sectors is registered in the defect map so as to have the same value among tracks in at least all the tracks of that zone.

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ottesen et al. ('676) and Dobbek et al. Ottesen et al. meets certain limitations of claims 1 and 4-5, including Ottesen et al. ('676) Figures 1-3B show at element 260 holding a range of specific sectors with a parameter of a two-dimensional direction along a disk surface. Ottesen et al. ('676) fails to show said specific sectors being set as sectors excluded from reading or writing of data and a host unit for instructing said hard disk drive to read or to write data, nor does Ottesen et al. ('676) show the host unit stores first positional information about a sector and specifies a target

sector according to this positional information which is a logical address, nor does Ottesen et al. ('676) show the disk drive obtains second positional information including said first positional information and sector range information to identify a target sector according to said second positional information which is a physical address.

Dobbek et al. Figures 2, 4, and 9-12 show specific sectors in element 450 being set as sectors excluded from reading or writing of data and a host unit for instructing said hard disk drive to read or to write data, the host unit stores first positional information about a sector and specifies a target sector according to this positional information which is a logical address at elements 264 and 456, and the disk drive obtains second positional information including said first positional information and sector range information to identify a target sector according to said second positional information which is a physical address at elements 456 and 458, for the purpose of mapping around defect sectors that go bad during the operation of the disk drive. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Ottesen et al. ('676) to enable use of the teaching of Dobbek et al. of specific sectors being set as sectors excluded from reading or writing of data and a host unit for instructing said hard disk drive to read or to write data, the host unit stores first positional information about a sector and specifies a target sector according to this positional information which is a logical address, and the disk drive obtains second positional

information including said first positional information and sector range information to identify a target sector according to said second positional information which is a physical address, the motivation being to map around defect sectors that go bad during the operation of the disk drive.

Regarding claims 2-3, Ottesen et al. ('676) Figure 2 shows information from registers 2 and 3 including reference positions of said specific sector ranges and the numbers of specific sectors continued in both the circumferential and the radial directions of the disk, wherein these specific sectors are defect sectors to be registered as unusable sectors.

9. Claims 6 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ottesen et al. ('676) in view of Dobbek et al. Ottesen et al. ('676) meets certain limitations of claim 6, including Ottesen et al. ('676) Figures 1-3B show a recording disk 14, a head assembly 10, and at col. 1, lines 57-58 and at element 260 holding positional information of a defect sector including a number of said defect sectors continued in a circumferential and in a radial direction of the disk. Ottesen et al. ('676) fails to show a specific sector disabled to read/write data and a sector identification device that refers to said positional information of said defect sector to identify a target sector.

Dobbek et al. Figures 2, 4, and 9-12 show specific sectors in element 450 being set as sectors excluded from reading or writing of data and a sector

identification device 212 that refers to said positional information of said defect sector to identify a target sector for the purpose of mapping around defect sectors that go bad during the operation of the disk drive. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Ottesen et al. ('676) to enable use of the teaching of Dobbek et al. of specific sectors being set as sectors excluded from reading or writing of data and a sector identification device that refers to said positional information of said defect sector to identify a target sector, the motivation being to map around defect sectors that go bad during the operation of the disk drive.

Regarding claim 8, Ottesen et al. ('676) col. 5, lines 10-12 show said positional information includes denoting a plurality of defect sectors are registered as one block at least when continued in a radial direction of the disk.

10. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ottesen et al. ('676) in view of Dobbek et al. as applied to claim 6 above, and further in view of Andoh et al. The combination as disclosed meets all the additional limitations of this claim for the reasons given above regarding claim 6, except it does not show said defect sector positional information is stored on the disk and read from the disk to the memory during a disk drive start up.

Andoh et al. Figure 1 and col. 2, lines 42-54 show said defect sector positional information is stored on the disk and read from the disk to the memory during a

disk drive start up for the purpose of reducing cost of additional memory. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of the disclosed combination to enable use of the teaching of Andoh et al. of storing defect information on the disk and read from the disk to the memory during a disk drive start up, the motivation being to reduce cost of additional memory.

11. Claim 15 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record fails to disclose or suggest a method for registering a defect map that denotes the position of each defect sector among sectors formed on a recording disk comprising when the number of tracks is two or more is registered in said defect map avoiding the presence of two or more defect sector blocks in the same track, as presented in the environment of claim 15.

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Shimote et al. Figures 18-22 and 26-30, Ottesen et al. ('858) Figures 4-10, and JP6-187800 show two-dimensional defect mapping. Tsuchimoto et al. Figures 1-3 and 6-10, Sims, III et al. Figures 2 and 5 show converting LBA to

PBA similar to applicant's invention. JP4-78036 shows storing all continuous defect blocks in one track as a single defect.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to James L Habermehl whose telephone number is (703)305-6975. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh Tran can be reached on (703)305-4040. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Habermehl/jlh
22 August 2004


SINH TRAN
PRIMARY EXAMINER